

# Programming Your Digital Personal Communicator™ or Portable Cellular Telephone

## Programming Manual

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## 1. INTRODUCTION

Your cellular phone contains a special memory which retains information about the phone's individual characteristics, such as its assigned telephone number, system identification number, and other information that is necessary for cellular operation. This special memory is known as the Number Assignment Module (NAM). You can program the phone yourself, if the phone has not already been programmed where you purchased it. You can also reprogram the phone yourself should you wish to change some of the features already selected for the NAM.

The programming of the NAM is performed after you have contacted your cellular system operator (or operators) for the necessary information as described below. Enter the information received from your cellular system operator in the NAM Programming Data Table (included in this manual) before programming the NAM of your cellular telephone. *Follow your system operator's instructions regarding each NAM information entry. Incorrect NAM entries can cause your cellular telephone to operate improperly or not at all.*

Your cellular telephone number can be programmed up to fifteen times. After that, it must be reset at a Motorola—authorized service facility.

**Be sure to read through this entire manual before attempting to program your phone.**

## 2. FEATURES TO BE PROGRAMMED

You must request seven pieces of information from the cellular system operator to allow you to program your cellular phone. You provide the remaining information. Write all of this programming information on the NAM Programming Data Table provided on page 15 of this manual before commencing the procedure. Incorrect NAM entries can cause your cellular telephone to operate improperly or not at all. The required information is:

- **System Identification (SID) Code (5—digits)**—Indicates your *Home* system. Enter 0's into the left—most unused positions. *Provided by the system operator.*
- **Cellular Telephone Number (10 digits)**—Used in the same manner as a standard land—line telephone. The mobile phone number and the Electronic Serial Number are checked against each other by the cellular system each time a call is placed or received. *Provided by the system operator.*



- **Station Class Code** (2 digits) — 06 or 14 for *Digital Personal Communicator* or portable telephones. Even though your phone has extended bandwidth capability (832 channel capacity), the cellular system operator may require your station class code to remain 06. The code should be 14 if 832 channel operation is allowed. (If you have the Extended System, and wish it to be programmed with a separate phone number for standalone operation, the class code mark will be set to 12 for the Extended System—with the *Digital Personal Communicator* telephone disconnected.) *Provided by the system operator.*
  - **Access Overload Class** (2 digits) — *Provided by the system operator.*
  - **Group ID Mark** (2—digits) — *Provided by the system operator.*
  - **Security Code** (6—digits) — The six—digit security code allows the user to restrict his calls in certain ways and it permits other advanced security measures. Refer to your operator's manual for further details. *Select any 6—digit code that you will remember, but one that will not be easily compromised.*
  - **Unlock Code** (3—digits) — The 3—digit unlock code unlocks the telephone after it has been locked. Locking the telephone allows you to prevent unauthorized usage. With many models, this number can be programmed as often as desired. Consult your user manual. *Select any convenient 3—digit number.*
  - **Initial Paging Channel** (4 digits) — Use a leading zero if required. (Example: Channel 334 is entered as 0334.) *Provided by the system operator.*
  - **Option Bits** (6 digits) — This programming step allows you to program six separate features in one step. Each feature is either selected or cancelled by assigning a value of 1 or 0. The six individual single—digit features combine to form a six—digit code which is entered as one step. If any of the features is to be changed, the entire six—bit word must be reentered.
- **Internal Speaker** — *This feature is normally selected by programming 0. However, if you purchased the Convertible Accessory and it contains a separate External Speaker/VSP unit, cancel the internal speaker feature by programming 1.*
- **Local Use** — *This feature is normally selected by programming 1. Your system operator can tell you if you need to cancel this feature by programming 0.*
- **MIN Mark** — *This feature is normally not used and is assigned a value of 0.*

- **Auto Recall** — *This feature is always set at 1.*
- **Second Phone Number** — This feature is normally selected by programming 1. Enter a 1 only if you wish to enter a second telephone number and your telephone is equipped for dual system operation.
- **Future Use** — *This feature is always set at 0.*
- **Option Bits** — This programming step allows you to program an additional five separate features in one step. Each feature is either selected or cancelled with the digit 1 or 0. The five individual single—digit features combine to form a five—digit code which is entered as one step. If any of the features is to be changed, the entire five—digit code must be reentered.
- **Failed Page Indicator** (available in some models) — This feature if activated (1) will alert you with a series of short beeps and "CALL" will appear in the display, if an incoming call could not be completed due to insufficient signal strength.
- **Motorola Enhanced Scan** (available in some models) — This feature is always set to 1.
- **Long Tone DTMF** — Certain electronic devices, such as answering machines, are not able to decode the normal DTMF tones because the telephone system standard duration is too short. The Long Tone DTMF feature allows access to answering machines and other similar devices by transmitting the DTMF tone for as long as the key is depressed. *This feature is normally enabled and is assigned a value of 1. However, you can disable Long Tone DTMF by programming 0.*

#### NOTE

*Digital Personal Communicator* telephone or portable models may include the Long Tone DTMF feature in the MENU, which allows the user to more flexibly select and cancel this feature. However to allow Menu control of the function it must be cancelled in the NAM by setting this bit to 0. If Long Tone DTMF is selected in the NAM with a 1 in this bit, it cannot be reversed through the Menu.

- **Future Use** — *This feature is always set at 0.*
- **Eight—Hour Timeout** (*Convertible only*) — *Digital Personal Communicator* or portable telephones with the convertible accessory can normally be left active in the vehicle for eight hours with the ignition off. If the timeout feature is selected, the telephone will turn itself off



after eight hours to preserve the vehicle's battery. *This feature is normally selected by programming 0.* However, you can cancel this eight-hour time limit by programming 1.

### 3. OBTAINING SYSTEM REGISTRATION DATA

A cellular phone owner purchases service from a cellular system operator, just as he would purchase land-line service (for standard telephones) from the local telephone company. In cities with cellular coverage, the customer may have the option of picking one of two possible cellular system operators.

Before you can obtain a phone number, you will have to supply your cellular system operator with your electronic serial number. All cellular telephones contain a special **Electronic Serial Number (ESN)**. The ESN uniquely identifies your phone and provides a measure of protection against theft and fraud. The ESN is an eight-character (numeric/hexadecimal) number printed on the box your phone came in.

Once you supply your electronic serial number to the system operator, he will issue your phone number and supply the other information required to program the NAM. You should immediately enter this information on the NAM Programming Data Table on page 15 of this manual.

### 4. PROGRAMMING YOUR TELEPHONE

#### 4.1 Determining the Initial Programming Sequence

The initial programming steps include a sequence of keypresses which vary depending on the type of cellular telephone you have. The telephone NAM can be programmed from the *Digital Personal Communicator* or portable telephone keypad. Determine from Table 1 which of the six keystroke sequence numbers to use on your phone, based on the type of keys present on the keypad.

Table 1

Determining the Sequence Number with Telephone Keypad

Keys on Telephone Keypad	Sequence
MENU and FCN keys	6
FCN key but no MENU key	1 or 6*
No Fcn key	2

\* If telephone contains a **Feature Menu** (see user's manual) use sequence 6.

If you have the Extended System, the mobile telephone NAM must be programmed from the Extended System handset. *(Make sure that the Digital Personal Communicator telephone is disconnected from the Extended System before programming the Extended System.)* If you have the extended system accessory, and wish to use it separately as a standalone mobile, you may obtain an additional telephone number and program this into the Extended System accessory at this time.

Chose one of the six initial programming sequences from Table 2 depending on the sequence number which you determined from Table 1.

Table 2  
Initial Programming Sequence

Sequence Number	Sequence
1	FCN, Security Code entered twice, RCL
2	STO, #, Security Code entered twice, RCL
3	Ctl, 0 + Security Code entered twice, RCL
4	Ctl, 0 + Security Code entered twice, *
5	FCN, 0 + Security Code entered twice, MEM
6	FCN, 0 + Security Code entered twice, RCL

Security code is programmed 000000 at the factory.

#### 4.2 Initial Steps

Before you proceed with the programming procedure, be sure you have filled out the NAM Programming Data Table on page 15.

**Step a.** Turn on your cellular telephone by pressing the Pwr button. The power indicator in the display will light.

**Step b.** Enter the proper keystroke sequence determined from Table 3.

**Step c.** The message 01 will appear in the left side of the display to confirm the activation of the NAM programming feature. It also indicates that you are at the first step in the NAM programming sequence. If this message does not appear, it may be due to one of the following:

- The initial sequence may not have been entered quickly enough. The appearance of digits in the display will indicate this. Press Clr and try again.
- The six digit Security Code may have previously been programmed into your cellular telephone. If this is the case, you must re-enter the activation sequence using the assigned security code.



- The maximum number of times that your cellular phone can be reprogrammed from the keypad may have been reached. Contact the personnel where you obtained your cellular telephone if reprogramming is required.
- The ability for your cellular phone to be programmed from the keypad may have been disabled or cancelled. Contact the personnel where you obtained your cellular telephone if reprogramming is required.

#### 4.3 Programming Procedure

Programming for a single phone number can be as quick as a four-step process or may take up to 11 steps, depending on how many programmable features you wish to review or change. The phone always has some information programmed for each of the features, whether that information is standard programming performed at the factory or information provided by someone who programmed the unit previously. If, while you are programming, you are satisfied with the value already programmed for a particular feature, simply press ✱ to move to the next feature.

At any time that a two-digit step number (01–11) appears in the left side of the display, you may store all the information programmed in the phone by pressing **SND** to return to normal phone operation.

In order to perform the following steps, it is necessary for you to refer to the completed NAM Programming Data Table. If you enter a digit incorrectly, press the **Clr** button and start again.

Step	Enter/Press on the Keypad	Display	Comment
1a 1b 1c	✱ New system ID ✱	01 Current System I.D. xxxxx 02	Ready for step 1 Factory Setting 00000 New system ID Ready for step 2
2a 2b 2c	✱ New area code ✱	Current area code xxx 03	Factory setting 111 New area code Ready for step 3
3a 3b 3c	✱ New phone number ✱	Current phone number xxxxxxx 04	Factory setting 1110111 New phone number Ready for step 4
4a 4b 4c	✱ New station class mark ✱	Current station class mark. xx 05	Factory setting 06 or 14 for portable/Digital Personal Communicator telephone, 12 for standalone mobile. New station class mark Ready for step 5
5a 5b 5c	✱ New access overload class ✱	Current access overload class xx 06	New access overload class Ready for step 6
6a 6b 6c	✱ New group ID ✱	Current Group ID xx 07	Factory Setting 00 New group ID Ready for step 7
7a 7b 7c	✱ New security code ✱	Current security code xxxxxx 08	Factory setting 000000 New security code Ready for step 8
8a 8b 8c	✱ New unlock code ✱	Current unlock code xxx 09	Factory setting 123 New unlock code Ready for step 9
9a 9b 9c	✱ New initial paging channel ✱	Current initial paging channel xxxx 10	Factory setting 0334 New initial paging channel Ready for step 10



Step	Enter/Press on the Keypad	Display	Comment
10a 10b 10c	✱ New options ✱	Current options xxxxxx 11	Factory setting 010100 New options Ready for step 11
11a 11b 11c	✱ New options ✱	Current options xxxxx 01 or 01 2	Factory setting 11100 New options Ready for review or programming second phone number

#### 4.4 Reviewing of NAM Programming

Once you have completed the programming steps, review the information by repeatedly pressing \*. Check to make sure that the information programmed matches what you wrote in the NAM Programming Table. Make any required changes.

#### 4.5 Storing the Information

If you are programming a single phone number, press **SND** to store the programming information when you are satisfied that it is all correct. A two-digit step number (01–11) must appear in the left side of the display in order for you to store the data. Press ✱ until one appears and then press **SND**.

Your *Digital Personal Communicator* or portable cellular telephone is now ready for normal use, if you are programming a single phone number.

#### 4.6 Programming the Second Telephone Number

If 01 2 appears in the display after you have pressed **SND** to store the programming information for the first phone number, you are ready to repeat some or all of the ten steps, this time for a second phone number. The 01 indicates that you are ready to enter the System ID information (step 1) and the 2 indicates that you are programming information for the second telephone number. The phone assigns the same security and lock codes (steps 7 and 8) for the second phone number and skips from step 6 to step 9. There is no step 11 when programming a second phone number.

If 01 2 did not appear after programming the first phone number, and you wish to program a second number, then the second telephone option should be selected (step 10).

Once you have completed the programming steps, review the information by repeatedly pressing \*. Check to make sure that the information programmed matches what you wrote in the NAM Programming Table. Make any required changes. Press **SND** to store the programming information when you are satisfied that it is all correct. (A two-digit step number (01–10) must appear in the display.)

Your *Digital Personal Communicator* or portable cellular telephone is now ready for normal use.

### 5. BEFORE CALLING FOR SERVICE

If you experience operating difficulties, check the following before making a call for service.

- **Have you read your User's Manual ?**

Everything you need to know to operate your cellular telephone is in your User's Manual. Take the time to read it and become familiar with all the features of your telephone before calling for service. **Note that not all of the features discussed below are included in all telephone models.**

- **If your telephone is equipped with Vehicular Speaker Phone (V.S.P.), do you hear excessive feedback noise during a V.S.P. call ?**

Because of audio variations in the cellular system, excessive feedback noise or howling may sometimes be heard when a full duplex (if your telephone is so equipped) V.S.P. call is placed or received. If this occurs, decrease the speaker volume using the volume control of the side of the handset. Motorola's full duplex Vehicular Speaker Phone is designated V.S.P. II.

- **Have you unlocked your unit ?**

Your cellular telephone is inoperative when locked as indicated by the word **Locked** in the display. To unlock the telephone, enter your 3-digit lock code. The word **Locked** will disappear.

- **Is the red NS (No Service) indicator lighted ?**

This may indicate that you are outside the service area or in a marginal reception area. Marginal reception may also be indicated by a fast busy or alternating high-low sound when attempting to place a call.



- **Have you programmed a unique operating mode into the unit?**  
Constant flashing of the yellow **Roam** or **Rm** indicator or illumination of the red **No Svc** or **NS** (no service) indicator while in your home service area may indicate an undesired roam characteristic choice has been selected. See "Roaming and System Operation" in your User's Manual.

## 6. **DIGITAL PERSONAL COMMUNICATOR & PORTABLE CELLULAR TELEPHONE BATTERY CHARGERS**

### 6.1 **Digital Personal Communicator Telephone Battery Chargers**

These are described in detail in your *Digital Personal Communicator Telephone* user's manual.

### 6.2 **Portable Telephone Battery Charger**

The ac overnight charger is an accessory item for use with the cellular portable telephone. The unit operates from the appropriate ac source with a recharge time of from 10 to 14 hours. The Nickel Cadmium battery may be recharged separately or while attached to the portable telephone. Charging is indicated by a yellow LED (light emitting diode) located on the front of the unit.

### 6.3 **Safety Instructions**

- Before using the charger, read all of the following instructions and the cautionary markings on the charger and battery.
- **CAUTION:** To reduce the risk of injury, charge only Motorola Nickel-Cadmium batteries. Other batteries may burst causing personal injury and damage.
- Use of any attachments and accessories not approved by Motorola (including, but not limited to batteries, chargers, and adapters) may void your telephone's warranty.
- To reduce the risk of damage to adapter and cord, pull adapter rather than cord when unplugging adapter from wall outlet.
- Do not expose to rain or snow.
- Make sure cord is located so that it will not be stepped on, tripped over, or otherwise subjected to damage or stress.
- Do not operate charger with damaged cord or adapter.
- Do not operate charger if it has been dropped or damaged in any way — take it to a qualified service center.
- To reduce the risk of electric shock, unplug charger before attempting any maintenance or cleaning.

- We do not recommend charging your battery for an extended period of time (i.e. longer than 24 hours).

### 6.4 **Portable Charger Operation**

- Battery attached to portable telephone:
  - Plug the adapter into the appropriate ac outlet.
  - Turn portable telephone off.
  - Place the portable telephone in charger compartment with keypad facing forward.
  - The yellow LED on the front of the charger will glow to indicate battery charging.
- Battery removed from portable telephone:
  - (to remove battery, refer to the portable telephone user's manual)
  - Plug the adapter into the appropriate ac outlet.
  - Place the battery in an upright position in the back of the charger compartment so that the battery contacts touch the charger contacts. A magnet inside the charger will hold the battery in place.
  - The yellow LED on the front of the charger will glow to indicate battery charging.

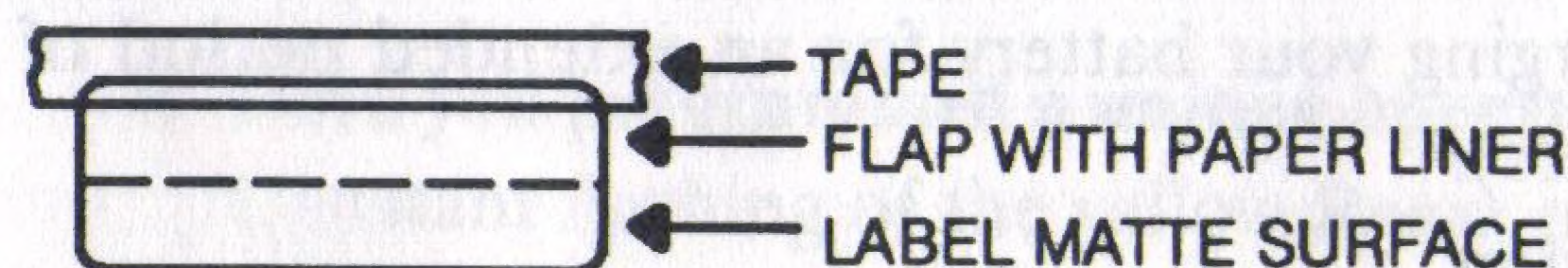
### 6.5 **Portable Charger Maintenance**

- If yellow LED does not glow when battery is set in place:
  - Check to make sure the adapter is plugged in.
  - Check battery pack and charger contacts to make sure contacts are clean and not shorted.
- If yellow LED still does not glow when battery is set in place take charger to a qualified service center.

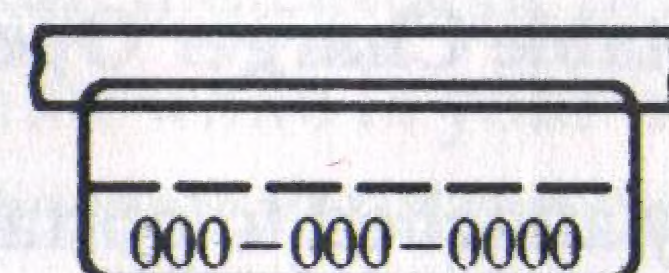
## 7. **TELEPHONE NUMBER LABEL INSTALLATION INSTRUCTIONS**

A telephone number label sheet is provided with each *Digital Personal Communicator* and portable telephone. This sheet contains telephone labels with protective flaps. One of these labels should be typed and installed in the phone number recess on the phone.

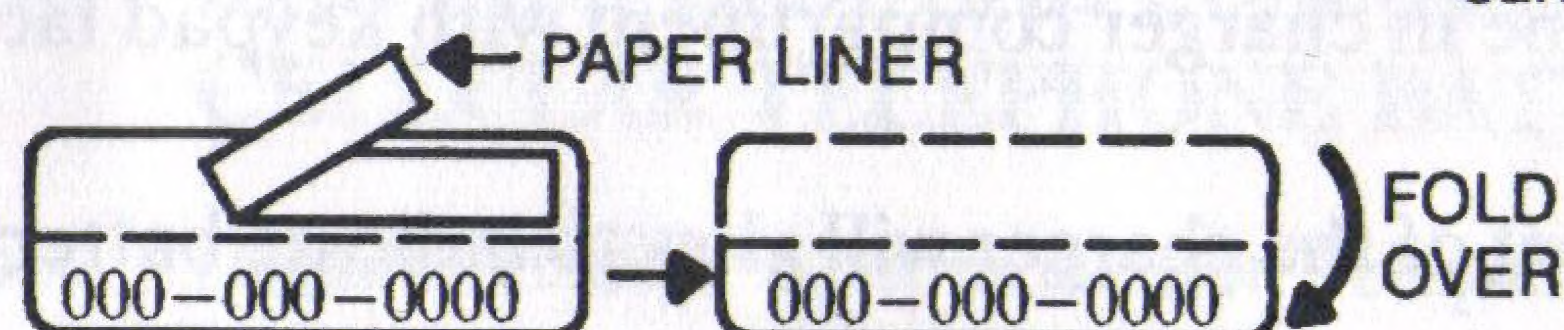




STEP 1. Do not remove label from sheet. Fold flap with paper liner upward and secure in place with a small piece of tape.



STEP 2. Place entire label sheet in typewriter and type phone number on matte surface of one label.



STEP 3. After phone number is typed on label, remove label sheet from typewriter, remove tape, and peel off paper liner from flap. Fold flap down over phone number and press securely to protect typed surface.

STEP 4. Remove label from label sheet and place in phone number label recess on flip of the *Digital Personal Communicator* phone or on the bottom of the portable phone. Press down all edges firmly to assure adhesion to phone. (Clean surface with isopropyl alcohol before attaching label.)

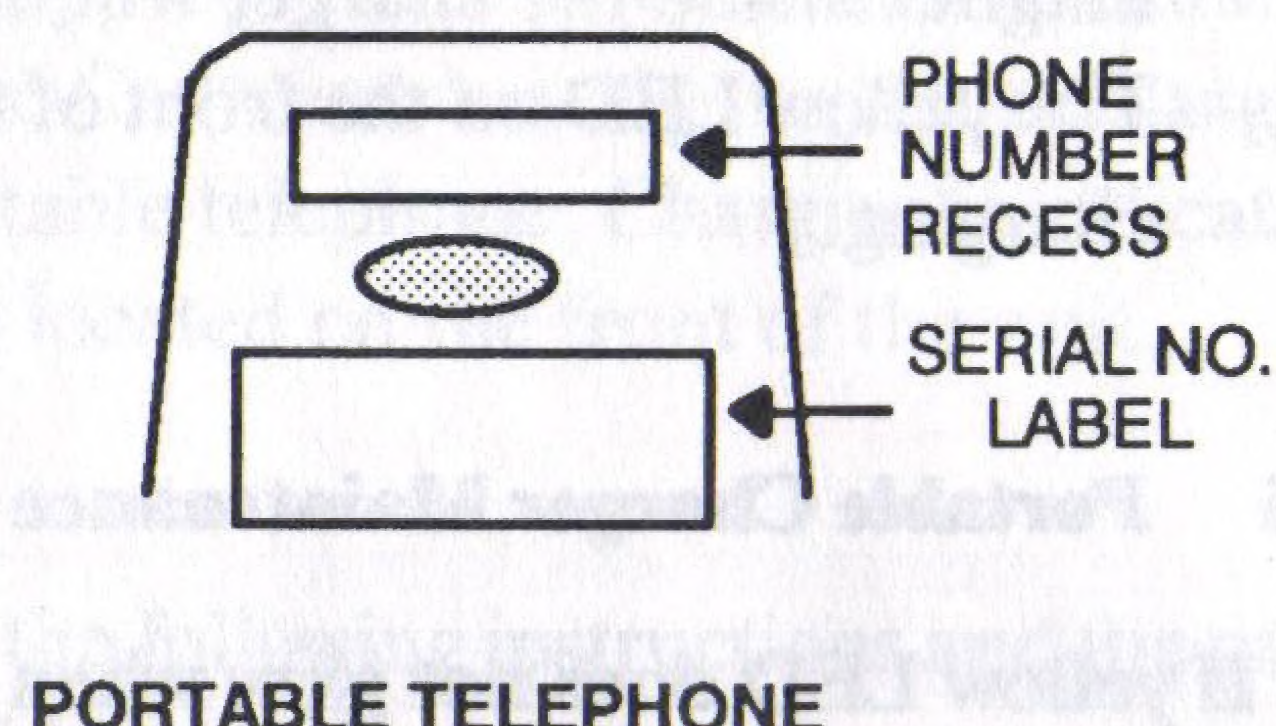
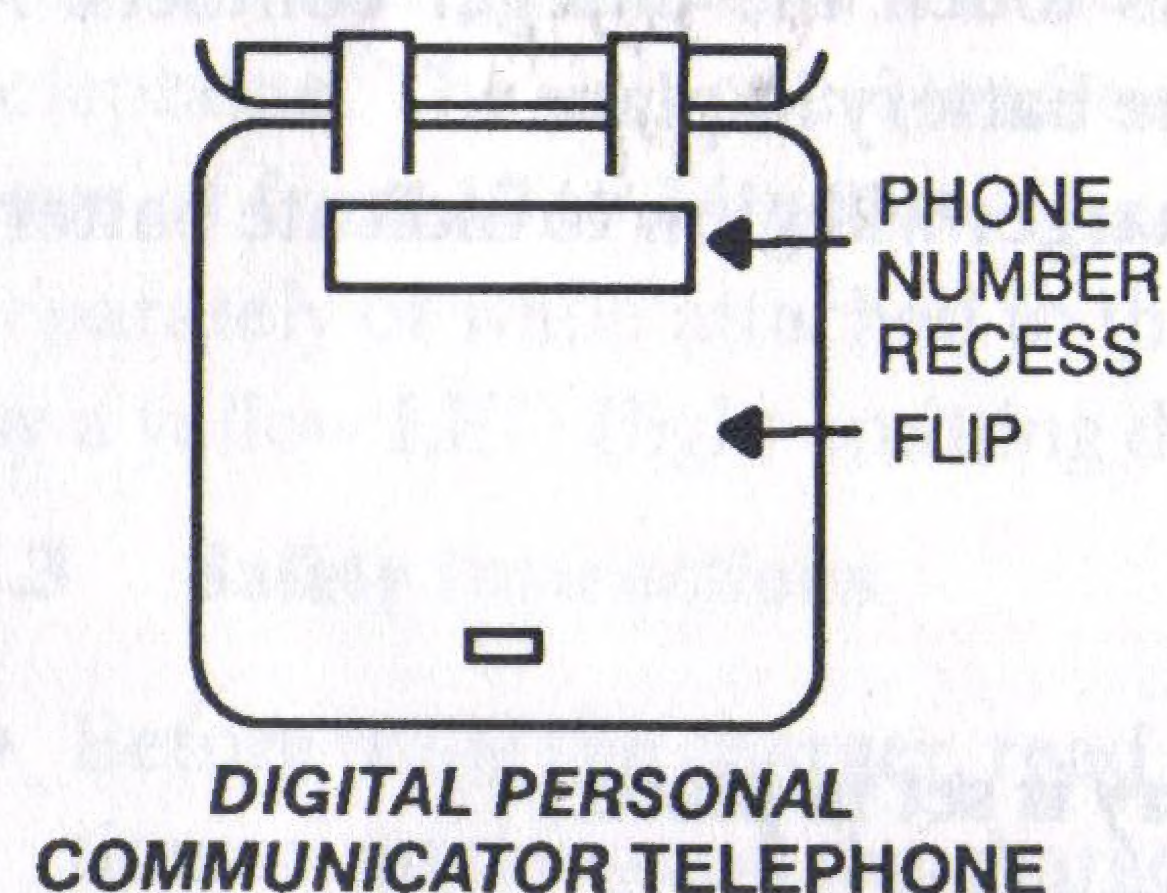


Figure 1. Telephone Number Label Installation Procedure

Type one label and install it in the recess provided on the flip of the *Digital Personal Communicator* phone or the bottom of the portable phone as shown in Figure 1. Save the remaining labels for future use.

## NAM PROGRAMMING DATA TABLE

* Step Number	Description	Number of Digits	Source	Information (fill in)
01	System ID Number	5 Digits	System Operator	-----
02	Cellular Area Code	3 Digits	System Operator	---
03	Cellular Phone Number	7 Digits	System Operator	-----
04	Station Class Mark (Usually 14)	2 Digits	System Operator	--
05	Access Overload Class	2 Digits	System Operator	--
06	Group ID Mark	2 Digits	System Operator	--
07	6-Digit Security Code	6 Digits	Telephone Owner	-----
08	3-Digit Unlock Code	3 Digits	Telephone Owner	---
09	Initial Paging Channel (Usually 0333 or 0334)	4 Digits	System Operator	----
10	Option Programming	6 Digits		
	Handset Internal Speaker Disable	1 Digit	Telephone Owner	-
	If your installation contains a separate External Speaker/VSP unit, the handset internal speaker must be disabled. 1 = Disabled; 0 = Enabled. This bit normally enabled.			
	Local Use	1 Digit	System Operator	-
	(Normally enabled. 1 = Enabled, 0 = Disabled.)			
	MIN Mark	1 Digit	System Operator	-
	(1 = Enabled, 0 = Disabled.)			
	Auto Recall	1 Digit	Always 1	1
	2nd Phone No.	1 Digit	Telephone Owner	-
	(Normally disabled. 1 = Enabled, 0 = Disabled.)			
	For Future Use	1 Digit	Always 0	-
	Optional Programming Data Entry			
11	Option Programming (Cont'd)	5 Digits		
	Failed Page Indication (available in some models)	1 Digit	Telephone Owner	-
	(1 = Disabled, 0 = Enabled.)			
	Motorola Enhanced Scan (available in some models)	1 Digit	Telephone Owner	-
	(1 = Enabled, 0 = Disabled.)			
	Long Tone DTMF	1 Digit	Telephone Owner	-
	(Normally enabled. 1 = Enabled, 0 = Disabled.)			
	For Future Use	1 Digit	Always 0	0
	Eight-hour Timeout	1 Digit	Telephone Owner	-
	(Normally enabled. 1 = Disabled, 0 = Enabled.)			
	Optional Programming Data Entry			

\* This number is the message that appears in the display during programming.



# NAM PROGRAMMING DATA TABLE FOR SECOND TELEPHONE NUMBER

(Complete this table if your cellular telephone is equipped for dual system operation and you desire to have dual system operation.)

* Step Number	Description	Number of Digits	Source	Information (fill in)
01	System ID Number	5 Digits	System Operator	-----
02	Cellular Area Code	3 Digits	System Operator	---
03	Cellular Phone Number	7 Digits	System Operator	-----
04	Station Class Mark (Usually 14 for 832 channels, 12 for Standalone mobile)	2 Digits	System Operator	--
05	Access Overload Class	2 Digits	System Operator	--
06	Group ID Mark	2 Digits	System Operator	--
09	Initial Paging Channel (Usually 0333 or 0334)	4 Digits	System Operator	----
10	Option Programming	6 Digits		
	Handset Internal Speaker Disable If your installation contains a separate External Speaker/VSP unit, the handset internal speaker must be disabled. 1 = Disabled; 0 = Enabled. This bit normally enabled.	1 Digit	Telephone Owner	-
	Local Use (Normally enabled. 1 = Enabled, 0 = Disabled.)	1 Digit	System Operator	-
	MIN Mark (Normally disabled. 1 = Enabled, 0 = Disabled.)	1 Digit	System Operator	-
	Auto Recall	1 Digit	Always 0	0
	2nd Phone No.	1 Digit	Always 0	0
	Diversity	1 Digit	Always 0	0
	Optional Programming Data Entry			----

\* This number is the message that appears in the display during programming.

**Complete Table on Other Side First  
Retain in a Secure Location**